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WHAT WE CLAIM IS:

- Sub 1*
1. A rotary impact rock crusher having componentry which includes
a crushing chamber housing, and
a rotor into which rock may be introduced and ejected therefrom positioned in
the crushing chamber housing,
the rock crusher characterised in that
the relative angles of at least one of the crusher components is adjustable with
respect to the vertical.
2. A rock crusher as claimed in claim 1 wherein the angle of the rotor and the
angle of the crushing chamber housing with respect to the vertical are
adjustable independently of other crusher componentry.
3. A crusher as claimed in claim 1 wherein the rotor and the crushing chamber
housing are at a fixed position relative to each other so the rotor and crushing
chamber are adjustable with respect to the vertical together.
4. A rock crusher as claimed any of claims 1 to 3 wherein the crushing chamber
angle is adjustable to control the rock fracture mechanisms in the crusher.
5. A rock crusher as claimed in claim 4 wherein the fracture mechanisms include
shatter, cleavage, attrition, and abrasion.
6. A rock crusher as claimed in any of claims 1 to 5 which includes an anvil for
rocks ejected from the rotor to impact in.

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7. A crusher as claimed in any one of claims 1 to 6 wherein the crusher is configured so that in operation a rock wall forms on at least part of the interior of the chamber housing.
8. A rock crusher as claimed in claim 7 wherein the rock wall forms an ever-tightening corner when at least one of the rock crusher component angles is adjusted from the vertical.
9. A rock crusher as claimed in any previous claim wherein the rotor includes a drive shaft configured so that its angle with respect to the vertical is variable independently of at least one other component in the crusher.
10. An anvil segment, configured to be used with an impact crusher which includes a crushing chamber housing and a rotor,
- the anvil characterised in that the position of the anvil in the crusher is adjustable.
11. An anvil as claimed in claim 10 wherein the adjustable position is the distance between the rotor on the crusher and the anvil.
12. An anvil segment for use with a rotary impact rock crusher, the anvil characterised in that the anvil is configured to have at least one cavity positioned within the anvil structure.
13. An anvil as claimed in claim 13 wherein there are a plurality of cavities within the anvil structure.
14. An anvil as claimed in any one of claims 11 to 13 wherein the anvil is configured so that if an anvil surface wears through a cavity will fill with rock emitted from the rotor.

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15. An anvil as claimed in claims 14 wherein the further wearing of the anvil will regenerate the anvil impact surface.
16. An anvil as claimed in claims 11 to 15 wherein the cavities have substantially adjacent vertices.
17. An anvil as claimed in any one of claims 11 to 16 wherein the anvil is configured to have a stepped face.
18. An anvil as claimed in claim 18 wherein there is at least one cavity associated with at least one stepped face.
19. An anvil as claimed in any one of claims 12 to 18, wherein the anvil is the anvil claimed in claims 10 or 11.
20. An anvil as claimed in any one of claims 10 to 20 wherein the anvil is located through an aperture in the crushing chamber wall.
21. An anvil as claimed in claim 20 wherein the anvil is adjustable by altering the position of the anvil through the aperture in the crushing chamber wall.
22. An anvil as claimed in any one of claims 10 to 21 wherein the anvil is configured to be adjustable from out side of the crushing chamber of the rock crusher.
23. A plurality of anvil segments as claimed in any one of claims 10 to 22, arranged to operate in combination in a rock crusher.
24. A rock crusher as claimed in claims 1 to 9, which includes an anvil as claimed in any one of claims 10 to 23.
25. A rock crusher as claimed in claims 1 to 9 and 24 which includes an exit means for the crushed rock which projects to one side of the crusher.

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26. A rock crusher as claimed in claims 1 to 9 and either of claims 24 and 25, the exit means is configured so that a shaft-housing for the shaft driving the rotor in the rock crusher is surrounded by the exit means so that the plane of the exit means intersects and the shaft housing at an acute angle.
27. A rock crusher as claimed in any one of claims 25 or 26 wherein the exit means may be configured to vibrate as a result of the operation of the rock crusher to urge the crushed rock down the chute.
28. A rock crusher as claimed in the preceding claim wherein the chute may be manufactured from rubber, or plastic based material.
29. A method of controlling the fracture mechanisms in a rotary impact crusher, which includes a crushing chamber housing, and a rotor characterised by the step of altering the relative angles of the crusher componentry.
30. The method as claimed in claim 29, characterised by the further step of adjusting the distance between an anvil in the rotary impact crusher and the outlet of the rotor to achieve the desired fracture mechanism.
31. A method as claimed in any one of claims 29 or 30 wherein the method is achieved using a crusher described in any one of claims 1 to 9 or any one of claims 24 to 28.
32. A method as claimed in any one of claims 29 or 30 wherein the method is achieved using an anvil as claimed in claims 10 to 23.
33. A method as claimed in any one of claims 29 or 30 wherein the method is achieved using a crusher described in claims 1 to 9, or any one of claims 24 to 28 and an anvil as claimed in claims 10 to 23.

